# Math 112 - Quiz 4

March 1, 2017

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (2 points) Write the negation of the statement "All students eat pizza."

   Some students do not eat pizza.

2. (3 points) Construct the truth table for $\sim p \wedge q$.

| $p$ | $q$ | $\sim p$ | $\sim p \wedge q$ |
|---|---|---|---|
| T | T | F | F |
| T | F | F | F |
| F | T | T | T |
| F | F | T | F |

3. (2 points) Here are the statements $p$ and $q$:

   $p$ : My dog is sick.

   $q$ : My dog must go to the vet.

   What statement, in a grammatically correct sentence, is $p \vee \sim q$?

   My dog is sick or my dog must not go to the vet.

4. (2 points) Referring to the problem above, write the statement "If my dog is not sick, then my dog must not go to the vet" in symbolic form.

   $\sim p \longrightarrow \sim q$

5. (1 point) Write the truth table for $p \rightarrow q$.

| $p$ | $q$ | $p \rightarrow q$ |
|---|---|---|
| T | T | T |
| T | F | F |
| F | T | T |
| F | F | T |